Explanatory Notes

Survey Design And Estimation Methods

The data presented in this publication include data collected by the Petroleum Division (PD) on weekly and monthly surveys, and data released by Reuters Ltd. PD data are derived from the Weekly Petroleum Supply Reporting System (WPSRS) which comprises five surveys: the "Weekly Refinery Report" (EIA–800); the "Weekly Bulk Terminal Report" (EIA–801); the "Weekly Product Pipeline Report" (EIA–802); the "Weekly Crude Oil Stocks Report" (EIA–803); and the "Weekly Imports Report" (EIA–804). The EIA weekly reporting system, as part of the Petroleum Supply Reporting System, was designed to collect data similar to those collected monthly. In the WPSRS, selected petroleum companies report weekly data to EIA on crude oil and petroleum product stocks, refinery inputs and production, and crude oil and petroleum product imports. On the Forms EIA–800 through EIA–803, companies report data on a custody basis. On the Form EIA–804, the importer of record reports each shipment entering the United States. Current weekly data and the most recent monthly data are used to estimate the published weekly totals.

PD data contained in this report are derived from 2 weekly telephone surveys and 3 monthly mail surveys. The weekly surveys, EIA-878, "Motor Gasoline Price Survey," and EIA-888, "On-Highway Diesel Fuel Price Survey," provide timely information on national and regional retail prices of gasoline and on-highway diesel fuel. The monthly surveys collect volume weighted price data for crude oil and petroleum products, the EIA-14, "Refiners' Monthly Cost Report," EIA-782A, "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report," and EIA-782B, "Resellers'/Retailers' Monthly Petroleum Product Sales Report." In order to provide a comprehensive summary of current conditions in petroleum markets, spot and futures prices as reported by Reuters Ltd. are also included.

Sample Frame

WPSRS Forms: EIA-800 through EIA-804

The sample of companies that report weekly in the WPSRS was selected from the universe of companies that report monthly. All sampled companies report data only for facilities in the 50 States and the District of Columbia. The frame from which the EIA-800 sample is drawn includes all operating and idle petroleum refineries and blending plants in the 50 States and the District of Columbia. The EIA–801 sample frame includes all bulk terminal facilities in the United States and its possessions that have total bulk storage capacity of 50,000 barrels or more, or that receive petroleum products by tanker, barge, or pipeline. The EIA–802 sample frame includes all petroleum product

pipeline companies in the 50 States and the District of Columbia that transport refined petroleum products, including interstate, intrastate, and intracompany pipeline movements. Pipeline companies that transport only natural gas liquids are not included in the EIA–802 frame. Only those pipeline companies which transport products covered in the weekly survey are included. The EIA–803 sample frame consists of all companies which carry or store 1,000 barrels or more of crude oil. Included are gathering and trunk pipeline companies (including interstate, intrastate and intracompany pipelines), crude oil producers, terminal operators, storers of crude oil, and companies transporting Alaskan crude oil by water in the 50 States and District of Columbia. The frame from which the EIA-804 sample is drawn includes importers of record of crude oil and petroleum products into the 50 States and the District of Columbia including imports of petroleum products from Puerto Rico, the Virgin Islands, and other U.S. possessions.

Form EIA-14

Respondents filing Form EIA-14, "Refiners' Monthly Cost Report," include all refiners of crude oil in the United States, including its territories and possessions. There are currently 70 active respondents to the EIA-14. The list of respondents to the EIA-14 is updated annually by supplementation from the EIA-782A, "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report," and the EIA-810, "Monthly Refinery Report."

Forms EIA-782A and EIA-782B

The EIA-782A survey consists of a census of respondents who either directly or indirectly control a refinery or gas plant facility. Currently, 113 companies respond to the EIA-782A survey. The EIA-863 data base provides the sampling frame for the EIA-782B survey. The Form EIA-863, "Petroleum Product Sales Identification Survey," was mailed to approximately 22,000 companies in January 1996, in order to collect 1995 State-level sales volume data for No. 2 distillate, residual, and motor gasoline. The No. 2 distillate data were further identified by residential/nonresidential end-use and non-end-use sales, while the residual and motor gasoline data were identified by end-use and non-end-use sales. The mailing list for the EIA-863 survey was constructed by merging and eliminating duplication in the previous frame file and approximately 71 State and commercial lists. Data from the 1995 EIA-821, "Annual Fuel Oil and Kerosene Sales Report," survey were merged with data from the EIA-863 survey to yield a combined file.

Sampling Designs

The sampling procedure used for the surveys in the WPSRS is the cut-off method. In the cut-off method, companies are ranked from largest to smallest on the basis of the quantities reported during some previous period. Companies are chosen for the sample beginning with the largest and adding companies until the

total sample covers about 90 percent of the total for each item and each geographic region for which weekly data are published.

	Weekly Form	March 2002 Frame Size	Weekly Sample Size
Refiners (Refineries)	EIA-800	161(240)	59(191)
Bulk Terminals	EIA-801	246	65
Product Pipelines	EIA-802	83	40
Crude Oil Stock Holders	EIA-803	156	62
Importers	EIA-804	182	84

The Form EIA-782B is sent to a scientifically selected sample of motor gasoline resellers, and distillate, propane, and residual fuel oil resellers and retailers. The Form EIA-863, "Petroleum Product Sales Identification Survey," served as the basis of the sampling frame of dealers. Information obtained from the Form EIA-863 is supplemented with information from the Form EIA-821, "Annual Fuel Oil and Kerosene Sales Report." The sales volumes obtained from these surveys are used to assign measures of size for sampling. Dealers comprising 5 percent or more of sales in a State were selected with certainty. The remaining units on the frame were each assigned a probability of selection. In this design, the probability was based on the size of the company, as determined by their sales volume, relative to the total for all companies for each geographic area and type-of-sale classification relevant for that company. In addition, a random number between 0 and 1 was assigned to each company. The companies were then ordered by the ratio of the random number minus the random number times the probability to the probability minus the random number times the probability (r-rp)/(p-rp). The first 2,200 companies in this ordering were then selected for the sample. The noncertainty companies were then post-stratified within each geographic/type-of-sale category by their volume. The sample weights, the inverse of the probabilities, were multiplied by the sample expectation adjustment which was the ratio of the sum of the probabilities of selection for all frame units in the stratum to the actual sample size of the stratum.

The geographic areas were defined as (a) the 24 States in which No. 2 distillate was a significant heating source and 50 States and the District of Columbia for residual and motor gasoline, (b) the 25 States in which propane was a significant energy source, or as (c) the PAD Districts for districts where not all State estimates are provided. The type-of-sale classifications were retail and resale for motor gasoline and residual fuel oil, and residential and nonresidential retail and wholesale for distillate and propane. Four volume-of-sales strata (certainty, zero, low, and high) were defined with volume boundaries differing by State, sales type, and product.

The design of the EIA-782B sample was based on ten target variables: total retail motor gasoline, total wholesale motor gasoline, residential No. 2 fuel oil, other retail No. 2 fuel oil, total

wholesale No. 2 fuel oil, residential propane, total other retail propane, wholesale propane, total retail residual fuel oil, and total wholesale residual fuel oil. A sample size of 2,200 was expected to yield a median level of accuracy for each target variable of volume coefficients of variation (CV) of 15 percent for No. 2 distillate and 10 percent for the other products, determined at the publishable State level (24 States for distillate, 25 for propane, 50 States and the District of Columbia for motor gasoline and residual). Studies on the relationship of volume CV to price CV have shown that this will produce price CVs of less than 1 percent. The reliability of current month estimates will vary from these goals due to the deterioration of the frame over time and the changing distributions of price and volume.

Prior to March 1997, the sample design was a linked stratified sample. Within each product, sales type, and geographic area, companies were stratified by the size of the company as determined by their sales volumes. The samples resulting from the separate stratification schemes were combined by means of joint linked selection to yield a sample size of approximately 3,500 companies. Prior to October of 1993, the sample design, the survey sample, and the survey form did not include propane. For more detailed information on the EIA-782 surveys, refer to the *Petroleum Marketing Monthly*.

The EIA-878 telephone survey collects price data from a selected sample of 912 retail gasoline outlets. The sample of outlets was designed to yield price estimates for national, PADD, and subdistrict PADD levels of ozone nonattainment and attainment areas, and select cities and states with a 1 cent standard error. Weekly sampling errors may vary from this target. The sample was derived by selecting companies with a probability proportional to size, based on their retail sales of gasoline reported on the EIA-782 monthly survey from November 1996 to October 1997. Once a company was selected, it was contacted to determine the location for each outlet randomly sampled within the outlets owned by the company. Using this location information, outlets were classified by the two fuel formulations. The number of outlets selected within each PADD varied according to expected price variances in each PADD and estimated distributions of outlets.

The EIA-888 telephone survey collects price data from a selected sample of 350 retail on-highway diesel fuel outlets. The sample for the survey was designed to yield price estimates at the PADD, sub-PADD and national level, and for the state of California. A 1 cent standard error was targeted for PADDs 1, 2 and 3, and 1.5 cents for PADDs 4, 5, sub-PADDs 1X, 1Y, 1Z, and the state of California. Standard errors for determining the sample size were estimated using data from the EIA-888 survey. The EIA-888 sample was derived as a probability proportional to size subsample of the respondents from the EIA-782A and EIA-782B sample who reported on-highway diesel fuel sales where the reported volume was the company size. Specific outlets within a company were selected using probability proportional to size sampling according to data provided by the company when initiated to the survey.

Collection Methods

Survey data for the WPSRS are collected by mail, mailgram, telephone, Telex, facsimile, and electronic transmission on a weekly basis. All canvassed firms must file by 5:00 p.m. on the Monday following the close of the report week, 7:00 a.m. Friday. During the processing week, company corrections of the prior week's data are also entered. Survey data are collected by mail every month for the EIA-14 and EIA-782A, and 782B surveys and weekly by telephone and facsimile for the EIA-878 and EIA-888. It is mandatory for each monthly respondent to submit completed forms to EIA no later than 30 calendar days after the close of each reference month. For the EIA-878 and EIA-888 surveys, data are mostly collected through a Computer Assisted Telephone Interview (CATI) survey processing system on Monday of each week as of 8:00 a.m. local time. If Monday is a holiday, the calls are made on the next business day, however, the Monday price is recorded.

Data Processing

Data collected through WPSRS and on the EIA-14, EIA-782A and EIA-782B survey forms are received, logged into an automated Survey Control File, keyed and processed through an edit program. Data that fail the edits are resolved through telephone calls to the respondents. Statistical reports, including publication tables, are generated using only acceptable and verified data. Imputation is performed for nonrespondents and for data that fail the edits. Data from the EIA-878 and EIA-888 telephone surveys are received over the telephone and entered on-line at collection time by the interviewer and edited.

Estimation And Imputation

Survey data gathered from the respondents invariably contain incomplete reporting, nonresponse, and values that fail editing. Imputation for nonrespondents in the WPSRS data base is performed after the company reports have been checked and entered into the system. The imputed values are exponentially smoothed means of recent weekly reported values for this specific company. The imputed values are treated like reported values in the estimation procedure, which calculates ratio estimates of the weekly totals. First, the current week's data for a given product reported by companies in a geographic region are summed. (Call this weekly sum, W_s.) Next, the most recent month's data for the product reported by those same companies are summed. (Call this monthly sum, M_s.) Finally, let M_t be the sum of most recent month's data for the product as reported by all companies. Then, the current week's ratio estimate for that product for all companies, W_t, is given by:

$$W_t = \frac{M_t}{M_s} \cdot W_s$$

This procedure is used directly to estimate total weekly inputs to refineries and production. To estimate stocks of finished products, the preceding procedure is followed separately for refineries, bulk terminals, and pipelines. Total estimates are formed by summing over establishment types.

Weekly imports data are highly variable on a company-by-company basis or a week-by-week basis. Therefore, an exponentially smoothed ratio has been developed. The estimate of total weekly imports is the product of the smoothed ratio and the sum of the weekly reported values and imputed values.

For EIA-782 survey participants, missing data are estimated, or imputed for as follows. First, for all survey units, the previous month's reported value and the previous month's predicted value are weighted together to yield a predicted value for the current month. The sum of the weighted, predicted values for nonrespondents in the current month is then multiplied by a chain link multiplier (the ratio of the sum of the weighted, reported values for respondents in the current month to the sum of the weighted, predicted values for respondents in the current month). The resulting estimate for missing values is then added to the sample weighted reported values. Price estimates are further weighted by reported volumes. See Explanatory Notes in the *Petroleum Marketing Monthly* for the estimation formulas and further explanation.

EIA-878 outlet prices are weighted by the estimated volume per outlet for each formulation and grade of gasoline, and by PADD. EIA-888 outlet prices have a constant weight within a PADD, sub-PADD and the state of California. Average prices are weighted by their respective volume percent of the U.S. volume of retail on-highway diesel fuel sales to derive the national average price.

Response Rates

The response rate at the close of business on the filing deadline day is about 80 percent for the EIA–800, 75 percent for the EIA–801, 95 percent for the EIA–802, 80 percent for the EIA–803, and greater than 95 percent for the EIA–804. However, more forms are received the next day, bringing the final response rates up. Late respondents are contacted by telephone. Nearly all of the major companies report on time. The response rate for the published estimates is usually between 98 percent and 100 percent.

The response rates on Forms EIA-14, EIA-782A, EIA-878, and EIA-888 are usually 98 to 100 percent, and approximately 88 percent on Form EIA-782B.

Reliability Of Data

There are two types of errors possible in an estimate based on a sample survey: sampling and nonsampling. Sampling errors occur because observations are made only on a sample, not on the entire population. Non-sampling errors can be attributed to many sources in the collection and processing of data. The accuracy of survey results is determined by the joint effects of sampling and nonsampling errors.

Measures Of Sampling Variability

Tables showing data from the EIA-782B, EIA-878, and EIA-888 surveys utilize a sample of resellers and retailers and, therefore, have sampling error. The particular sample used for each of the EIA-782B, EIA-878, and EIA-888 surveys is one of a large number of all possible samples that could have been selected using the same design. Estimates derived from the different possible samples would differ from each other. The average of these estimates would be close to the estimate derived from a complete enumeration of the population (a census), assuming that a complete enumeration has the same nonsampling errors as the sample survey. The sampling error, or standard error of the estimate, is a measure of the variability among the estimates from all possible samples of the same size and design and, thus, is a measure of the precision with which an estimate from a particular sample approximates the results of a complete enumeration.

Nonsampling Errors

Nonsampling errors can be attributed to many sources such as incorrect reporting by respondents, mistakes in recording or coding the data, and other errors of collection, response, coverage, and estimation for missing data.

Confidentiality

The data contained in this publication are subject to statistical nondisclosure procedures. The objective of the disclosure-avoidance procedures, as stated in the Energy Information Administration Standard 88-05-06, Subject: "Nondisclosure of Company Identifiable Data in Aggregate Cells," is to ensure that confidential, company-identifiable data are not disclosed in tables where "company specific responses may be proprietary and prohibited from public disclosure by 18 U.S.C. 1905." Statistics representing data aggregated from fewer than three companies or that are dominated by input from one or two companies are withheld. EIA identifies cells that are sensitive according to these criteria by applying a statistical formula to the data contained in each cell to determine if a few companies "dominate" the cell. If a cell is sensitive, the data in that cell are suppressed and a "W" is placed in the publication cell. Also, since many tables include row or column totals, some nonsensitive data cells have been suppressed to prevent the reader from calculating the suppressed numbers by simply subtracting the published numbers from the total.

Estimation Of Domestic Crude Oil Production

Monthly data on crude oil production for States are reported to the Department of Energy by State conservation agencies. Data on the volume of crude oil produced on Federally-owned offshore leases are reported by the Minerals Management Service, U.S. Department of the Interior. There is a time lag of approximately 4 months between the end of the reporting month and the time when the monthly crude oil production information becomes available. In order to present more timely crude oil production volumes, the Energy Information Administration prepares weekly crude oil production estimates which are based on historical production patterns and, where available, other data such as pipeline runs from the Alaskan North Slope during the week. These weekly estimates are presented as the weekly and 4-week average crude oil production volumes shown in this publication. Cumulative crude oil production volumes shown in the U.S. Petroleum Balance Sheet include revised estimates published in the *Petroleum Supply Monthly*.

Estimation Of Exports

Official U.S. exports statistics for crude oil and petroleum products are compiled by the U.S. Bureau of the Census and are published in the *Petroleum Supply Monthly*. The EIA obtains these data on a monthly basis approximately 10 weeks after the close of the reporting month. Beginning with statistics for the first week ending in October 1991, weekly estimates of exports are forecast using an autoregressive integrated moving-average (ARIMA) procedure. The ARIMA procedure models a value as a linear combination of its own past values and present and past values of other related time series. The most recent 5 years of past data are used to obtain the exports forecast. In addition, for the major products and crude oil, 5 years of related price data are used. The price data include some U.S. and some foreign series. Because of the reduction in volume of crude oil exports, and a shift in the country distribution, a new model was implemented on November 2, 2001 to determine the expected volume of crude oil exports.

Estimation Of Other Oils Stocks

Data are derived by (1) computing an average daily rate of stock change for the minor products for each month based on monthly data for the past 6 years; (2) using this daily rate and the minor stock levels from the most recent monthly publication to estimate the minor product stock level for the current period. Year ago data are interpolated from published monthly stock levels.

Initial Estimates of Petroleum Prices

The initial estimates are forecasts of U.S. and PADD prices for crude oil and selected petroleum products published in the *Petroleum Marketing Monthly* (PMM) (See Table 19). The initial estimates are published 1-2 months ahead of the normal publication schedule for the *PMM*. The initial estimates are forecasted using an autoregressive integrated moving average (ARIMA) transfer function model. The initial estimate is calculated based on its own past values and present and past values of other related time series, such as spot prices and heating degree-days. At least 5 years of data are used to obtain the forecasts.

One method of forecast evaluation is to compare actual to one month ahead forecast values for a 12 month period. Then, the Average Absolute Differences (AAD) are calculated. This provides a good indicator of the error associated with the forecasts. For the period January 1997 to December 1998, the forecasted values were within 2 cents of the actual value for 85% of the petroleum products and within 30 cents of the actual value for all the crude oil forecasts.

Table A1. Values of Average Ranges in Inventory Graphs
(Million Barrels)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
					Upper Range							
Total Petroleum	1,036.8	1,014.6	1,023.3	1,037.2	1,065.1	1,071.9	1,079.5	1,077.4	1,084.7	1,074.6	1,078.8	1,042.2
Crude Oil	321.8	322.2	333.7	337.5	338.3	334.5	330.2	322.2	320.1	327.3	329.5	316.0
Motor Gasoline...............	227.0	225.4	216.9	216.3	219.5	218.7	212.2	205.0	210.5	206.8	210.6	214.5
Distillate Fuel Oil	137.0	127.6	121.1	121.7	129.4	132.5	140.4	145.3	149.5	147.2	151.4	149.0
Residual Fuel Oil............	42.6	39.8	40.6	40.4	40.9	41.1	40.1	41.1	41.9	41.9	43.2	43.6
					Lower Range							
Total Petroleum	935.2	913.1	921.8	935.6	963.6	970.4	977.9	975.9	983.2	973.1	977.3	940.6
Crude Oil	289.7	290.2	301.7	305.5	306.3	302.5	298.1	290.2	288.1	295.3	297.5	283.9
Motor Gasoline...............	210.6	209.0	200.5	200.0	203.1	202.3	195.8	188.6	194.2	190.4	194.2	198.2
Distillate Fuel Oil	112.7	103.3	96.8	97.4	105.1	108.2	116.1	121.0	125.2	122.9	127.1	124.7
Residual Fuel Oil............	37.9	35.2	35.9	35.7	36.2	36.4	35.4	36.4	37.2	37.2	38.6	38.9

Data Assessment

The principal objective of the Petroleum Supply Reporting System is to provide an accurate picture of petroleum industry activities and of the availability of petroleum products nationwide from primary distribution channels. The weekly data, which are based on sample estimates stemming largely from preliminary company data, serve as leading indicators of the monthly data. The weekly data are not expected to have the same level of accuracy as the preliminary monthly data when compared with final monthly data. However, the weekly data are expected to exhibit like trends and product flows characteristic of the preliminary and final monthly data.

To assess the accuracy of weekly statistics, monthly estimates derived from weekly estimates are compared with the final monthly aggregates published in the *Petroleum Supply Annual*. Although final monthly data are still subject to error, they have been thoroughly reviewed and edited, they reflect all revisions made during the year and they are considered to be the most accurate data available. The mean absolute percent error provides a measure of the average revisions relative to the aggregates being measured for a variable. The mean absolute percent error for 2000 weekly data was less than 2 percent for 24 of the 61 major petroleum variables analyzed. Many of the variables with mean absolute percent errors of 2 percent or more were for refined products imports series. The mean absolute percent error for total weekly refined products imports was 12.29 percent for 2000. It should be noted that products imports data are highly variable and cannot be estimated from a sample with the same precision as other petroleum variables. Weekly estimates for refined products imports are almost always low because small companies,

which are not in the weekly sample, generally import large volumes of finished products only a few times during the year.

An analytical article, "Accuracy of Petroleum Supply Data," which assesses the differences between preliminary and final data on the 61 major petroleum variables, is published in the *Petroleum Supply Monthly* once each year.

Interpretation And Derivation Of Average Inventory Levels

The national inventory (stocks) graphs for total petroleum products, crude oil, motor gasoline, distillate fuel oil, and residual fuel oil in this publication include features to assist in comparing current inventory levels with past inventory levels and with judgments of critical levels. Methods used in developing the average inventory levels and lower operational inventory are described below.

Average Inventory Levels

The charts displaying inventory levels of crude oil and petroleum products (p.7), crude oil (p.7), motor gasoline (p.9), distillate fuel oil (p.11), and residual fuel oil (p.13) provide the reader with actual inventory data compared to an "average range" for the most recent 5-year period running from January through December or from July through June. The ranges also reflect seasonal variation for the past 7 years. The seasonal factors, which determine the shape of the upper and lower curves, are estimated with a seasonal adjustment technique developed at the Bureau of Census (Census X–11). The seasonal factors are assumed to be stable (i.e., the same seasonal factor is used for each January during the 7-year period) and additive (i.e., the

series is deseasonalized by subtracting the seasonal factor for the appropriate month from the reported inventory levels). The intent of deseasonalization is to remove only annual variation from the data. Thus, deseasonalized series would contain the same trends, cyclical components, and irregularities as the original data. The seasonal factors are updated annually in October, using the 7 most recent years' final monthly data. The seasonal factors are used to deseasonalize data from the most recent 5-year period (January-December or July-June) in order to determine a deseasonalized average band. The average of the deseasonalized 60-month series is the midpoint of the band, and two standard deviations of the series (adjusting first for extreme points) is its width. When the seasonal factors are added back in (the upper curve is the midpoint plus one standard deviation plus the seasonal factor, and the lower curve is the midpoint minus one standard deviation plus the seasonal factor), the "average range" shown on the graphs reflects the actual data. The ranges are updated every 6 months in April and October (Table A1).

Lower Operational Inventory

The lines labeled "lower operational inventory" on the stock graphs are the lower end of the demonstrated operational inventory range updated for known and definable changes in the petroleum delivery system.

Calculation of World Oil Price

The weighted average international price of oil, shown in the "Highlights" on page 1 and on page 22, is an average calculated using specific crude oil prices weighted by the estimated crude oil export volume for each oil-producing country. To develop the table shown on page 22, a list of major oil producing/exporting countries was chosen. For each country, the contract selling price of one or more representative crude oils was determined by investigating a number of industry publications (i.e., "Oil Buyers' Guide", "Platt's Oilgram Price Report", "Petroleum Intelligence Weekly", and "Weekly Petroleum Argus") and by contacting oil market analysts. Then, the appropriate crude oil volumes to be used as weighting factors for each country were determined. These volumes are estimates based on a number of sources which provide data on production, consumption, and exports for these countries. Export volumes for a number of smaller producing/exporting countries, not listed in the table, are included in the weighting factors. After the export volumes had been determined, simple mathematical weighted averages were calculated to arrive at the "Total OPEC," "Total Non-OPEC," and "Total World" prices. The average United States (FOB) import price is derived by the same basic procedure as the world oil price, that is, taking the representative contract crude oil price of a specific crude oil from a particular country and weighting this price by a certain volume of crude oil. In this case, the weighting factors are the volumes of crude oil imported into the U.S. from pertinent countries. Import volumes from a number of smaller producing/exporting countries, not listed in the table, are included in the weighting factors.

Both the import and export volumes are preliminary. Due to their origin, these estimates cannot be fully verified. These volumes are updated monthly, or more frequently when changes in oil market conditions make updating appropriate.

Technical Notes

Note 1

Areas requiring reformulated gasoline may change over time due to either the ozone non-attainment status of an area being re-designated by the EPA, a state opting an area in or out of an EPA clean fuel program, or a state adopting its own specific clean fuel program for an area and/or the entire state. EIA re-classifies the outlets reporting retail motor gasoline prices each time an area opts in or out of a reformulated gasoline program. The map on page 43 shows the areas requiring the sale of reformulated gasoline as of June 1, 2001.

Note 2

The spot prices that are shown in Tables 13 and 14 are calculated by taking an unweighted average of the daily closing spot prices for a given product over a specified time period, such as a week or month.

Note 3

The trans-Atlantic petroleum product price differentials shown in Figure 10 compare spot product prices at New York Harbor (NYH) and Amsterdam/Rotterdam/Antwerp (ARA). This comparison shows the potential for arbitrage, i.e., the shipment of product across the Atlantic to take advantage of higher profit opportunities in a foreign market. The flow of product is typically toward New York, and generally requires a minimum sustained differential of about 3 to 5 cents per gallon to cover the cost of transportation.

Note 4

The futures prices shown in Table 15 are the official daily closing prices at 3:10 p.m. from the trading floor of the New York Mercantile Exchange (NYMEX) for a specific delivery month for each product listed in Table 15.

Note 5

The futures price differentials shown in Figure 11 show the market premium for the first NYMEX delivery month contract over the second. For example, the data for September show the difference between October and November futures contract prices for crude oil and petroleum products, indicating the relative values placed by markets on commodities to be delivered during those two months. This differential, if negative and large enough, provides incentive for refiners and traders to hold product in storage, and if positive, to defer purchases until some future point in time.

Gasoline Formulations Required by Area as of June 1, 2001

Legend
☐ Conventional Area
🟩 RFG Area

Source: U.S. Environmental Protection Agency and State environmental offices.